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EVALUATION OF THE SOUTHERN PINE BEETLE INFESTATIONS ON THE UWHARRIE NATIONAL FOREST N. C.

By

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INTRODUCTION

An aerial sketchmap and ground evaluation were conducted on the Uwharrie National Forest on August 28, 1974 (Figure 1). The survey was performed by the Asheville Office of Forest Pest Management to determine the current status and trend of the southern pine beetle on this Forest.

The southern pine beetle outbreak on this forest is part of a South-wide outbreak involving 10 states. The current outbreak on the Uwharrie began in the summer and fall of 1972

METHODS

A 100-percent aerial sketchmap survey[1/] was performed in evaluating the southern pine beetle population.

A portion of the spots detected during the aerial phase of the evaluation was examined on the ground to confirm the cause of mortality, the percent of spots that are active, and to assess the general condition of beetle populations.

TECHNICAL INFORMATION

Insect - Southern pine beetle, *Dendroctonus frontalis*, Zimm.

Hosts - The southern pine beetle will attack all species of southern yellow pine. However, loblolly pine, *Pinus taeda* L., and shortleaf pine, *P. echinata* Mill., are the preferred hosts.

1/ Detection of Forest Pests in the Southeast. 1970, USDA, USFS, SA, S&PF, Div. of FPM, Pub. S&PF-7, Atlanta, Ga. 51 pp.

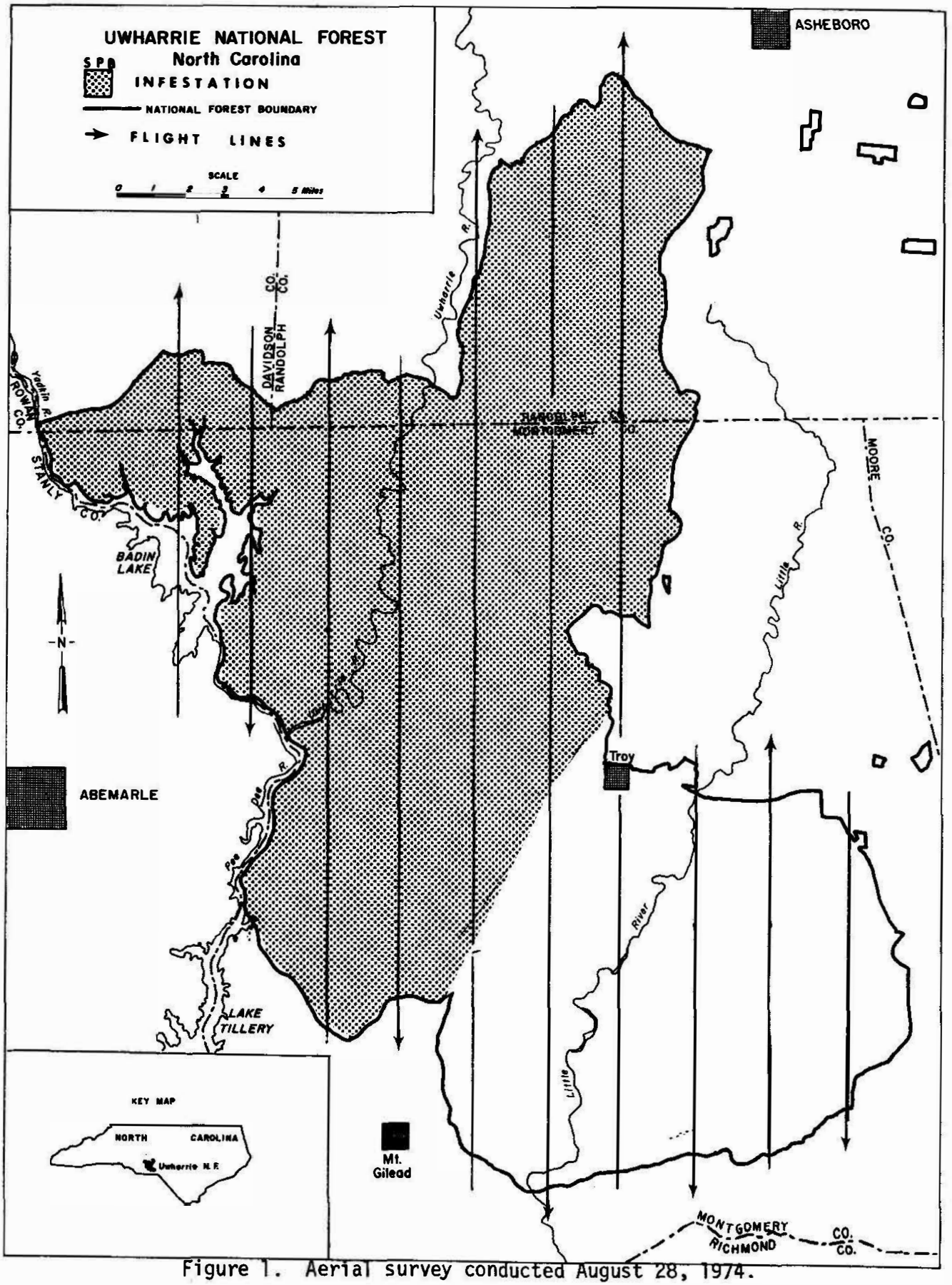

Figure 1. Aerial survey conducted August 28, 1974.

Type of damage - Death of the tree is the result of cambial mining by the southern pine beetle as it constructs its gallery. The beetle also introduces the blue stain fungi, *Ceratocystis* spp., which slows down or blocks conduction of water in the stem.

Life cycle of the beetle - The beetles attack in pairs and construct a winding gallery in the cambium. Eggs are deposited in niches along the sides of the galleries. The eggs hatch into whitish grubs that further mine the cambium and then construct cells in the bark for pupation. The callow adults then mine through the bark to emerge. The complete life cycle takes about a month during the summer and as many as seven generations may be produced in a year.

RESULTS AND DISCUSSION

Results of the current evaluation showed a high level of southern pine beetle activity on the Uwharrie National Forest (Tables 1 and 2). This evaluation found ten times as many infested trees as found on the September 1973 evaluation. Also there were seven times as many spots, ten times as many recently killed trees, and twenty-one times as many green infested trees as found on the last evaluation. These data indicate a great potential for an increase in the severity of the current outbreak on the Uwharrie National Forest.

A vigorous suppression project is already underway on the Forest. The Forest removed 10,400 cubic feet of infested pines by commercial sales in Fiscal Year 1974 and has removed 68,800 cubic feet since the beginning of Fiscal Year 1975.

RECOMMENDATIONS

It is recommended that the Uwharrie National Forest receive funds to conduct a suppression project in those areas where resource values can justify such action. Guidelines for suppression of the southern pine beetle are outlined in the 5250 section of the Forest Service Manual.

Table 1. Summary of results of southern pine beetle evaluation conducted on the Uwharrie National Forest, October 1974.

1. Results compiled from data collected during the aerial phase of the evaluation:	
Survey type	Aerial sketchmap
Date of aerial survey	8/29/74
Total acreage surveyed	220,069
Total susceptible host type	46,136
Total number of spots within the survey boundary	184
Spots per M acre of host type	4
Average spot size (red and fading trees)	70
Range of spot sizes (red and fading trees)	2 to 1500
2. Results compiled from data collected during the ground and aerial phases of the evaluation:	
Date of ground phase	10/3/74
Infested trees per M acre of host type	354
Total number of infested trees within the survey boundary	16,309
Ratio of green infested to total red and fading trees	1:1
Total volume of recently killed trees	382,176 cu. ft.
Total volume salvaged, F. Y. 1974	10,400 cu. ft.

Table 2. Summary of Aerial Survey Data - Uwharrie National Forest, North Carolina, September 1974.

Ownership	Infestation Size (No. of Trees)											
		2-5		6-20		21-50		50+		Total	
	Singles	Spots	Trees	Spots	Trees	Spots	Trees	Spots	Trees	Spots	Trees
Uwharrie[1/]	35	34	130	47	698	31	1,264	37	10,715	184	12,842

1/ *Corrected according to data by Aldrich et. al. (1958); expanded to a 100 percent survey area coverage.*